

- 24 -

WHAT IS CLAIMED IS:

1. A capacitor cell comprising:
 - one or more anodes;
 - one or more cathodes operatively associated with the anodes;
 - an electrolyte operatively associated with the anodes and the cathodes;
 - one or more separators provided in between the anodes and the cathodes to prevent internal electrical short circuit conditions and to allow sufficient movement of the electrolyte within the capacitor cell; and
 - one or more surfactants disposed on at least a portion of the one or more separators wherein the one or more surfactants enhance the wettability and absorption of the one or more separators.
2. A capacitor cell according to claim 1 wherein the one or more separators include one or more separator materials selected from the group consisting of nonwoven polymers, microporous polymers, track etched materials and papers.
3. A capacitor cell according to claim 2 wherein the one or more separators include one or more separator materials selected from the group consisting of polyesters, polyethylene, polypropylene, polycarbonate, polytetrafluoroethylene, Kraft paper and Manila paper.
4. A capacitor cell according to claim 2 wherein the one or more separators include one or more track etched materials selected

- 25 -

from the group consisting of NUCLEPORE®, CYCLOPORE™, ISOPORE™, PORETICS® and MEMTREX™, and SPI-Pore™.

5. A capacitor cell according to claim 1 wherein the one or more surfactants are selected from the group consisting of polyvinyl alcohol, dextran, agarose, alginate, polyacrylamide, polyglycidol, polyvinyl alcohol-co-polyethylene, poly(vinyl acetate-co-vinyl alcohol), polyacrylic acid, polyamide, polypeptides, poly-lysine, polyethyleneimine, poly-.beta.-malic acid, hyaluronic acid, derivatives of hyaluronic acid, polysaccharides, polyvinylpyrrolidone, and combinations or copolymers thereof.
6. A capacitor cell according to claim 1 wherein the one or more separators are impregnated with the one or more surfactants.
7. A capacitor cell according to claim 1 wherein the one or more surfactants are mixed with the electrolyte.
8. A capacitor cell according to claim 6 wherein the one or more separators are crosslinked with a crosslinking reagent.
9. A capacitor cell according to claim 8 wherein the crosslinking reagent is selected from the group consisting of aldehydes, epoxides, acyl halides, alkyl halides, isocyanates, amines, anhydrides, acids, alcohols, haloacetals, aryl carbonates, thiols, esters, imides, vinyls, azides, nitros, peroxides, sulfones, maleimides, vinyl sulfone, succinyl chloride, polyanhydrides, poly-B-malic acid, ethylene glycolbis-succinimidyl succinate, succinimidyl

- 26 -

succinate-polyethylene glycol, and succinimidyl succinamide-polyethylene glycol.

10. A capacitor cell according to claim 1 wherein the capacitor cell is arranged in a substantially flat, coiled configuration.
11. A capacitor cell according to claim 1 wherein the capacitor cell is arranged in a cylindrical coiled configuration.
12. A capacitor cell according to claim 1 wherein the capacitor cell is arranged in a stacked configuration.
13. A method of making a capacitor cell comprising:
 - providing one or more separators, one or more anodes and one or more cathode;
 - positioning the one or more separators in between the anodes and cathodes;
 - administering one or more surfactants to the one or more separators to enhance the wettability and absorption of the one or more separators;
 - inserting the positioned one or more separators, anodes and cathodes into a cell enclosure;
 - administering an electrolyte into the cell enclosure to activate the anodes and cathodes; and
 - sealing the enclosure to retain and maintain the one or more separators, anodes, cathodes surfactants and electrolyte within the enclosure.

- 27 -

14. A method according to claim 13 wherein the surfactants are administered to the one or more separators by impregnating the separators with the surfactants before positioning them between the anodes and cathodes.
15. A method according to claim 14 wherein the one or more separators impregnated with the surfactants is crosslinked with a crosslinking reagent.
16. A method according to claim 15 wherein the crosslinking reagent is selected from the group consisting of aldehydes, epoxides, acyl halides, alkyl halides, isocyanates, amines, anhydrides, acids, alcohols, haloacetals, aryl carbonates, thiols, esters, imides, vinyls, azides, nitros, peroxides, sulfones, maleimides, vinyl sulfone, succinyl chloride, polyanhydrides, poly-B-malic acid, ethylene glycolbis-succinimidyl succinate, succinimidyl succinate-polyethylene glycol, and succinimidyl succinamide-polyethylene glycol.
17. A method according to claim 13 wherein the one or more separators include one or more separator materials selected from the group consisting of nonwoven polymers, microporous polymers, track etched materials and papers.
18. A method according to claim 17 wherein the one or more separators include one or more separator materials selected from the group consisting of polyesters, polyethylene, polypropylene,

- 28 -

polycarbonate, polytetrafluoroethylene, Kraft paper and Manila paper.

19. A method according to claim 17 wherein the one or more separators include one or more track etched materials selected from the group consisting of NUCLEPORE®, CYCLOPORE™, ISOPORE™, PORETICS® and MENTREX™, and SPI-Pore™.
20. A method according to claim 13 wherein the one or more surfactants are selected from the group consisting of polyvinyl alcohol, dextran, agarose, alginate, polyacrylamide, polyglycidol, polyvinyl alcohol-co-polyethylene, poly(vinyl acetate-co-vinyl alcohol), polyacrylic acid, polyamide, polypeptides, poly-lysine, polyethyleneimine, poly-.beta.-malic acid, hyaluronic acid, derivatives of hyaluronic acid, polysaccharides, polyvinylpyrrolidone, and combinations or copolymers thereof.
21. A method according to claim 13 wherein the one or more surfactants are mixed with the electrolyte.
22. A method according to claim 13 further comprising arranging the capacitor cell in a substantially flat, coiled configuration.
23. A method according to claim 13 further comprising arranging the capacitor cell in a cylindrical coiled configuration.
24. A method according to claim 13 further comprising arranging the capacitor cell in a stacked configuration.